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No. VIII.

ADJUSTABLE JOINT-SPLINT.

The SILVER MEDAL was presented to Mr. BENJAMIN BARROW, Surgeon, 69 St. Ann Street, Liverpool, for his Splint for Injured and Diseased Joints; a Model of which has been placed in the Society's Repository.

12 *Pavement, Finsbury,*
April 20, 1841.

GENTLEMEN,

I HAVE the honour to forward for your inspection a Splint for Fractures of the Arm, but more especially for those graver cases in which the elbow-joint is implicated. It is the invention of Mr. Benjamin Barrow, of 69 St. Ann Street, Liverpool, whose description of the peculiarities of the instrument accompanies it. I have, at the request of Mr. Barrow, made trial of it in several cases of the kind referred to, and have found that it is a much more convenient form of splint than any I have before seen. It admits of being easily and readily accommodated to any posture that may be required, and allows of local applications to the fractured part, without the pain and disturbance which attend the removal and re-adjustment of ordinary splints.

I am, Gentlemen, &c. &c.

JOHN GAY.

Surgeon to the Royal Free Hospital,
to the Provident Clerks' Association, &c. &c.

To the Chairman and Committee
of the Society of Arts.

The splint which I now have the honour of submitting through Mr. Gay for the approbation of the Society was first suggested by the frequent occurrence of accidents to the knee and elbow-joints, as also by the frequency of diseases in these regions. The diseases have been most ably treated of by Sir Benjamin Brodie, and the various accidents have been discussed in every book on Surgery; therefore on these points I shall say no more than is positively necessary for the purpose of shewing the utility of the splint, and which I trust will be, nay, I believe, must be, most apparent to all, both professional and non-professional.

I have said that both the diseases and injuries have been most ably treated of. True; but one portion of the treatment always appeared to me imperfect, and that an apparatus was wanting whereby the joints could be kept *perfectly* at rest without pressure upon any portion of the painful region. Now, by fixing the two wooden splints (having previously padded them) by means of the straps, to the arm, one on the upper, and the other on the fore arm, or one to the thigh, the other to the leg, as the case may be, the two divisions (if I may be allowed the term) of the limb injured or diseased are thus kept perfectly quiet, the joint being left quite free for the application of any remedies that may be considered necessary. The splints are split through in order to allow of their more easy and perfect adaptation to the limb, an object which is fully obtained by this means. It will be, moreover, observed that the arch which connects the splints allows the limb to be bent to any angle, or to be placed straight; allowing also, if it be needed, of gradual motion; the two portions of steel forming the arch being fixed as may be desired by the small screws. I would also observe that these semicircular pieces of steel slide in the brass grooves attached to the wood, in order to admit of the splints being carried nearer to, or farther from, the joint, and being again firmly fixed by means of screws.

The arch serves also as a protection against the pressure of any clothes covering the body, and the arm is carried in a sling, the black strap being placed around the neck. In addition to the above-named uses for which this splint may be employed, I may inform the Society, that by its means contraction of the arm or knee may be overcome by gradual movements, and that also, by a somewhat broader upper splint, and a strap or straps sufficiently long to encircle the body, it is applicable in cases of diseased hip, maintaining it at rest, and allowing, as in the other cases, of the application of all necessary remedies.

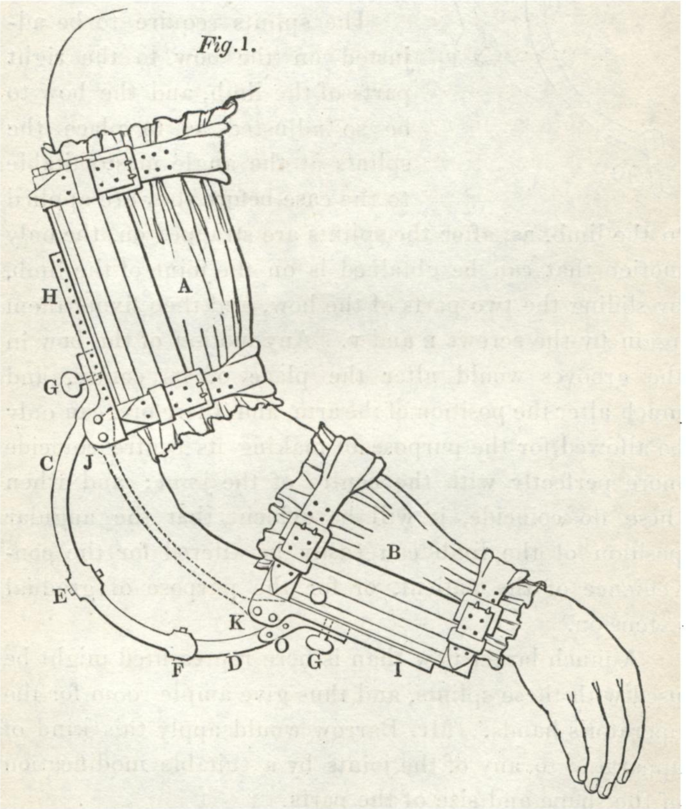
Although the splint has been some time invented, I was unwilling to bring it into public notice, or under the critic's eye, until I had evidence of its utility, and of its applicability in those cases which I have named in this short description. This evidence I (as many others) have had on many occasions during a long residence in St. Bartholomew's Hospital, to which institution I had the honour of being house-surgeon. I need only add that the splint can be made at a very moderate cost. If it prove serviceable in one case my object is gained, for I shall then have the satisfaction of knowing that I have relieved one unfortunate suffering fellow-creature.

I trust the utility of the apparatus has been clearly shewn, and that, through your means, it may become of general use; for this purpose, and that it might become public property, have I thought fit to send it for your inspection. I may name that the splint was made by

Mr. Ferguson of Giltspur Street, Surgical Instrument Maker to St. Bartholomew's Hospital.

Benjamin Barrow, M.R.C.S., &c.

Fig. 1 represents the splints A and B applied to an arm, and held together by the steel arcs or bows C D; E and F are the binding screws. These bows are shewn



separate in fig. 2; they have dovetail ends with binding screws G G, to fix them in the dovetailed grooves H and I at the back of the splints.

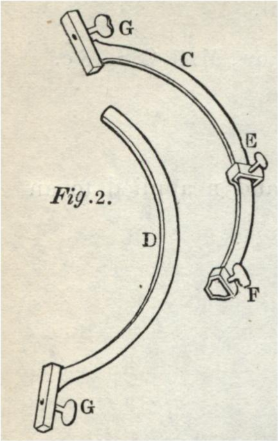


Fig. 2.

Fig. 3 is a back view of the splints A and B separated, the bow, fig. 4, being removed from its place in their grooves.

The splints require to be adjusted on the bow to the right parts of the limb, and the bow to be so adjusted as to place the splints at the angle most suitable to the case before they are applied to the limb, as, after the splints are strapped on, the only motion that can be obtained is on the joint of the limb, by sliding the two parts of the bow, and then fixing them again by the screws E and F. Any motion of the bow in the grooves would alter the place of its centre, and much alter the position of the arm, and, therefore, can only be allowed for the purpose of making its centre coincide more perfectly with the centre of the joint; and when these do coincide, it will be evident that the angular position of the limb can easily be altered for the convenience of the patient, or for the purpose of gradual extension.

A much larger bow than is here represented might be used with these splints, and thus give ample room for the operator's hands. Mr. Barrow would apply this kind of apparatus to any of the joints by a suitable modification of the shape and size of the parts.

Whilst this subject was under the consideration of the committee, it was objected, that in cases of disease or fracture, from the unusual prominence of the bow, the danger of striking it by accident would be incurred; a contrivance was then suggested at the committee, which, if added to Mr. Barrow's splints, would remove that danger. It consists of an extra bar, as little curved as the elbow and dressing will allow, to be substituted for the bow, which may be removed when the application of dressings, &c. is completed.

Such a bar may be applied in the following manner.

Let the dovetailed grooves be made with flat projections J and K, figs. 1 and 3 each having two screw-holes; against these are fitted the flat ends of the supplementary bar L M, figs. 5 and 6; the parts L M of this bar slide on each other, and it is fixed at the required length by the screws N N, each end of the bar having one round and one elongated hole to correspond with those in the projections J and K. The two screws N N being loosened, the bar is applied to the projections J K, as shewn by the dotted lines in fig. 1, and bound to them by four screws, after which the screws N N are tightened, and, as it will hold the splints in the same position as fixed by the bow, the latter may be removed. But, for this purpose, the arc D of the bow must be made separate from its dovetail, and be bound to it, as at O, figs. 1 and 4, by two screws, or one screw and two steady pins; then, on removing these screws and loosening the opposite binding screw G, the bow may be slidden out from the upper groove H; and, when medical attendance is given, it may as easily be replaced; the lower dovetail being left, in the readjustment of the bow, in exactly the same position as before, its removal is ensured, and the supplementary bar is then removed, in order to give the operator free access to the joint.

Fig. 7 is an end view of the lower dovetail, shewing the part O to which the bow is attached by screws.

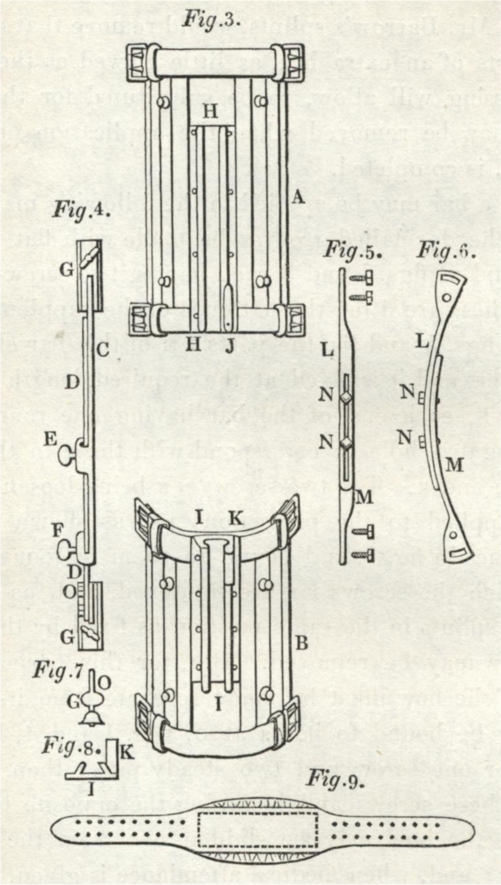


Fig. 8 is an end view of the groove I, shewing its projection K for receiving the supplementary bar. Fig. 9, one of the four padded straps. Studs are fixed in the splints to receive the ends of a sling.